



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,427	01/02/2002	Guenther Heinz	B01-085A	7207
26683 7590 10/28/2009 THE GATES CORPORATION IP LAW DEPT. 10-A3 1551 WEWATTA STREET DENVER, CO 80202				
EXAMINER				
KRUER, STEFAN				
ART UNIT		PAPER NUMBER		
3654				
MAIL DATE		DELIVERY MODE		
10/28/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/037,427
Filing Date: January 02, 2002
Appellant(s): HEINZ ET AL.

Jeffrey A. Thurnau
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 8 June 2009 appealing from the Office action mailed 4 February 2009.

(1) Real Party in interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief as amended is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments contained in the brief is correct. There were no after final amendments filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6,033,331	Winninger et al	03-2000
US 3,980,174	Conrad	09-1976
WO 99/43598	Adifon et al	09-1999
DE 3,934,654	Suhling	05-1991
US 3,662,596	Siefert	05-1972
US 4,981,462	White, Jr. et al	01-1991
US 3,948,113	Stork	04-1976

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 6, 13, 16, 28, 31 and 43 - 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Winninger et al (US 6,033,331) in view of Conrad (3,980,174).

Winninger et al disclose:

- an elastomeric body (21, Fig. 1) having a width w and a thickness t and having a pulley-engaging surface;
- the elastomeric body having an aspect ratio w/t that is greater than 1;
- a tensile cord (20) contained within the elastomeric body and extending longitudinally;

Art Unit: 3654

- the pulley-engaging surface having a ribbed profile extending longitudinally along the elastomeric body (Fig. 6); and
- a ribbed profile having a rib (23) depicted as having an angle of approx. 90°;
- a plurality of ribs (23);
- a plurality of tensile cords (20);
- at least one pulley (61) having a ribbed profile (62) engaged with the pulley engaging surface;
- wherein the rib angle is depicted in the range of approximately 60° to 120°;

however, though Winninger et al depict their rib having an angle of approximately 90°, Winninger et al are otherwise silent with respect to an angle of their rib while referencing norms and dimensional designations in accordance to ISO 9981, for which a rib angle of 40° is of consideration (2nd Ed., Table 1).

Attention is directed to Conrad who teaches a of a rib (42, Fig. 2) having a 90° angle (supplement to 2 x 48, Fig. 4) for the features of maintaining belt alignment and enhancing frictional contact (Col. 2, L. 7 and Col. 3, L. 45 - 55), in keeping with the instant invention (Para. 0024 - 0026)

It would have been obvious to one having ordinary skill in the art to modify the reference of Winninger et al with the teaching of Conrad to provide a rib having a rib angle of 90° for enhanced power transfer and runnability for benefits of reduced operating costs.

Claims 2, 5, 14, 17 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winninger et al and Conrad, as applied to Claims 1, 13, 16 and 28, respectively, and in further view of Adifon et al (WO 99/43598).

Re: Claim 2, Winninger et al disclose their tensile cord (20) comprising non-conductive material (Col. 3, L. 49). Conrad is silent with respect to a tensile cord.

Attention is directed to Adifon et al who teach their tensile cord (726) comprising a conductive material, as inherent to fibers of "...high-carbon steel..." (Pg 7, Line 15).

It would have been obvious to one of ordinary skill in the art to modify the invention of Winninger et al and Conrad with the teaching of Adifon et al for the benefit of strength and resilience to high temperature, the latter for safety.

Re: Claims 5 and 17, Winninger et al and Conrad disclose their respective belt as having no end.

Attention is directed to Adifon et al who teach their belt (16) as having an end for the suspension and traction of their elevator car (12) and counterweight.

It would have been obvious to one of ordinary skill in the art to modify the invention of Winninger et al and Conrad with the teaching of Adifon et al for the benefit of utility in suspending and moving elevator components.

Re: Claims 14 and 29, Winninger et al are silent with respect to their tensile cord having a conductive material having a resistance and Conrad is silent with respect to a tensile cord.

Adifon et al teach their tensile cord (726) comprising a conductive material having a resistance, as inherent to fibers of "...high-carbon steel..." (Pg 7, Line 15).

It would have been obvious to one of ordinary skill in the art to modify the invention of Winninger et al and Conrad with the teaching of Adifon et al to provide tensile cords of conductive material having a resistance, wherein such cords are of metallic material whereby a resistance to high temperature (e.g. fire) maintains strength for safety.

Claims 3, 15, 18 - 19, 21 – 22 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winninger et al, Conrad and Adifon et al, as applied to Claims 2, 14 and 29, and in further view of Suhling (DE 3,934,654) and Siefert (US 3,662,596).

Re: Claims 3, 15 and 30, Winninger et al are silent with respect to their tensile cord having a conductive material and Conrad is silent with respect to a tensile cord.

Adifon et al teach a tensile cord comprising a conductive material having a resistance, wherein the resistance of the cord inherently varies through changes in loading, their tensile cord as such is not configured for indicating change in resistance.

Attention is directed to Suhling who teaches the incorporation of conductive tensile cords (12a – 12h, Fig. 2) in conventional flat- and toothed suspension belts (11) for the detection of breakage, whereby the integrity of the suspension belt is monitored for replacement; however, Suhling does not indicate a lifting load.

Further consideration is directed towards Siefert who teaches his apparatus for the measurement of "...tension or compression stresses in a metal tire cord embedded in rubberized material of a tire..." as a means to determine the tensile/compressive strains of "...reinforcing metal cords..." under different inflation, loading and operating conditions (Col. 1, Line 13).

It would have been obvious to one of ordinary skill in the art to modify the invention of Winninger et al, Conrad and Adifon et al with the teachings of Suhling and Siefert to provide a means to determine the lifting load of suspension belts by monitoring the tension cords for elongation in advance of failure, for purposes of maintenance, safety and optimization.

Re: Claim 18, Adifon et al disclose a plurality of tensile cords (726).

Re: Claims 21 and 22, Adifon et al disclose their cords "...formed from ... a metallic material, such as thin, high-carbon steel..."

Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winninger et al, Conrad, Adifon et al, Suhling, Siefert, as applied to Claims 3 and 15, and in further view of White, Jr. et al (US 4,981,462).

Re: Claims 7 and 19, Winninger et al, Conrad, Adifon et al, Suhling and Siefert are silent with respect to a jacket on a surface opposite their pulley-engaging surface.

Attention is directed to White, Jr. et al who teach their jacket (30) on a surface opposite their pulley-engaging surface as known to the art (Col. 4, Line 20).

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to modify the invention of Winninger et al, Conrad, Adifon et al, Suhling and Siefert with the teaching of White, Jr. et al to provide a jacket on a surface opposite the pulley-engaging surface as known to the art.

Claims 8 – 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winninger et al, Conrad, Adifon et al, Suhling and Siefert and White, Jr. et al, as applied to Claims 7 and 19, respectively, and in further view of Stork (US 3,948,113).

Re: Claims 8 and 20, Winninger et al, Conrad, Adifon et al, Suhling and Siefert are silent regarding a jacket and, though White, Jr. et al disclose their jacket as well known in the art, they are silent with regard to its material of construction.

Stork, however, teaches his jacket (17, 18, Fig. 2 and Col. 3, line 57) comprising "...rubberized woven fabric material such as ... nylon..."

In that nylon is known to the art as an abrasion resistant material, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to modify the invention of Winninger et al, Conrad, Adifon et al, Suhling, Siefert and White, Jr. et al with the teaching of Stork to form the jacket of nylon for resistance to wear.

Re: Claims 9 and 10, Winninger et al disclose their tensile cord (20) comprising non-metallic material (Col. 3, L. 49). Conrad is silent with respect to a tensile cord.

Attention is directed to Adifon et al who teach their cords "...formed from ... a metallic material, such as thin, high-carbon steel..." (Pg 7, Line 15) for strength and flexibility.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to modify the invention of Winninger et al and Conrad with the teaching of Adifon et al for the benefits of strength, flexibility and resilience to high temperature, the latter additionally for safety.

Claims 11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winninger et al and Conrad, as applied to Claims 1 and 13, respectively, and in further view of Siefert.

Neither Winninger et al nor Conrad addresses a measurement of tensile cord loading.

Attention is directed to Siefert who teaches an electrical circuit (21, 22, 25, Fig. 1) connected to the tensile cord for measuring the stress-strain of metal cords, for various

Art Unit: 3654

loading conditions. Conversely, based on the measured strains, the tensile loads can be calculated.

It would have been obvious to one of ordinary skill in the art to modify the invention of Winninger et al and Conrad with the teachings of Siefert to provide a means to determine the tensile cord load of suspension belts by measuring the stresses of said cords through electrical transducers (P/I), to provide instantaneous feedback for operational oversight and historical data.

Claims 12 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winninger et al and Conrad, as applied to Claims 1 and 13, respectively, and in further view of Suhling.

Neither Winninger et al nor Conrad addresses a measurement of tensile cord failure.

Attention is directed to Suhling who teaches his tensile cords for the detection of breakage, including his electrical circuit (Fig. 1) for detection of such failure.

It would have been obvious to one of ordinary skill in the art to modify the invention of Winninger et al and Conrad with the teaching of Suhling to provide a means to monitor the failure of tension members for safety and maintenance.

Claims 25, 33 – 34 and 36 – 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winninger et al and Conrad, as applied to Claims 1, 13 and 33, respectively, and in further in view of Stork.

Re: Claims 25 and 33 – 34, Winninger et al and Conrad are silent regarding a fiber loading of their elastomeric bodies.

Attention is directed to Stork who teaches fiber loading in his elastomeric body to resist the formation of cracks (Col. 4, Line 8).

It would have been obvious to one of ordinary skill in the art to modify the invention of Winninger et al and Conrad with the teaching of Stork to extend fibers from the pulley-engaging surface to improve resistance to wear and failure.

With respect to **Claims 36 – 37**, Stork teaches, "...rubberized woven fabric material such as cotton, polyester or nylon or combinations thereof..." (Col. 3, Line 58) that forms his "partial tension section" as a "flexible resilient material".

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Winninger et al and Conrad with the teaching of Stork to provide a matrix of fibers for the enhancement of tensile and torsional strength properties.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Winninger et al in view of Conrad and Suhling and in further view of Siefert.

Winninger et al depict their belt having ribbed profile of approximately 90° to engage a pulley having a ribbed profile to enhance harmonic filtering and thereby service life, however Winninger et al reference ISO 9981 in which a rib angle of 40° is considered. Furthermore, Winninger et al are silent regarding the detection of a tensile cord load.

Conrad teaches a ribbed profile having a rib with an angle of approximately 90° for the features of maintaining belt alignment and enhanced frictional contact.

It would have been obvious to one having ordinary skill in the art to modify the reference of Winninger et al with the teaching of Conrad to provide a rib having an angle of approximately 90° for enhanced power transfer and runnability.

However, Conrad is silent with respect to a tensile cord.

Attention is directed to Suhling who teaches an electric circuit for detecting a tensile cord failure and an interface to provide an alarm signal (audible or visual) and/or to automatically shutdown a hoist motor (Col. 4, line 38). Siefert teaches further his apparatus for measuring of the stress of reinforcing cords and his electrical circuit for indicating the stress under various operating conditions.

It would have been obvious to one of ordinary skill in the art to modify the invention of Winninger et al and Conrad with the teachings of Suhling and Siefert to promote power transfer and reduce wear, thereby reduction in operating costs, as well as to promote safety.

Claims 35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winner et al, Conrad, Suhling and Siefert, as applied to Claim 26, and in further view of Stork.

Re: Claim 35, Winner et al, Conrad, Suhling and Siefert are silent regarding a fiber loading in their elastomeric bodies.

Attention is directed to Stork who teaches such to resist the formation of cracks.

It would have been obvious to one of ordinary skill in the art to modify the invention of Winner et al, Conrad, Suhling and Siefert with the teaching of Stork to inhibit the formation/propagation of cracks for enhanced service life and safety.

With respect to **Claim 38**, Stork teaches, "...rubberized woven fabric material such as cotton, polyester or nylon or combinations thereof..." (Col. 3, Line 58) that forms his "partial tension section" as a "flexible resilient material".

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Winner et al, Conrad, Suhling and Siefert with the teaching of Stork to provide a matrix of fibers for the enhancement of tensile and torsional strength properties for enhanced performance and service life.

(10) Response to Argument

Appellant's arguments are primarily directed to the prosecution of independent **Claims 1, 13 and 26**, with respect to the reference of Winner et al as modified by Conrad regarding the recitation "... the ribbed profile having a rib with an angle of approximately 90°...", for which the appellant argues:

1. the drawings of Winner et al "... cannot be scaled when the specification otherwise expressly describes the angle depicted", *In Re Olson*, 41 CCPA 871, 212 F.2d, and Winner et al describe their "... rib angle in terms of ISO 9981..." for which a copy of said standard was filed by amendment on 19 October 2007 to corroborate a rib angle of 40° associated with said ISO standard, said angle provided in Table 1 as excerpted from appellant's Evidence Appendix and indicated by appellant in appellant's appeal brief;

2. "... claims are to be given their broadest reasonable interpretation *consistent with the specification*" (emphasis by appellant); therefore, "... Examiner's reading of the claims in light of Conrad's teachings is overbroad and is inconsistent with [appellant's] specification".
3. Conrad teachings as derived by Examiner "... only relate to a "concavity" of the bottom of a rectangular rib 40... in effect, ... describing (sic) a longitudinal notch in an overall rectangular rib... [thereby teaching] ... at best ... a portion of a rib having an angle of 45°, namely a rib tip 46... [which] is significantly less than the range taught by the now supplanted White[, Jr. et al reference], which taught an angle of 60°... [which had been previously] ... successfully argued that among other things 60° ribs are an improvement over the art... [whereby] 60° represents a 50% increase in rib angle over the existing art at the time White[, Jr. et al] was filed"; and
4. A lack of *prima facie* case of obviousness and motivation to combine the references of Winner et al and Conrad exist "... since making a Conrad "notch" in a Winner rib would diminish the ability of the rib to transmit power through frictional contact with a pulley... [in that] removing material defeats... rib shear strength", thereby an improper use of hindsight reasoning.

With respect to the first argument as to the impermissibility of scaling the drawings when reviewing the disclosure of Winner et al **remains** moot in view of the rejection above in which Examiner noted that though Winner et al "... depict their rib having an angle of approximately 90°, Winner et al are otherwise silent with respect to an angle of their rib while referencing norms and dimensional designations in accordance to ISO 9981, for which a rib angle of 40° is of consideration (2nd Ed., Table 1)"

As known to appellant, upon receipt of applicant's arguments and further consideration, the reference of Conrad was applied for teachings associated with his belt comprising an elastomeric body having an aspect ratio w/t of greater than one and

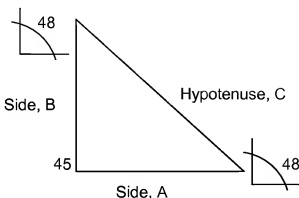
a ribbed profile extending in a longitudinal direction of a belt, wherein said profile comprises a rib angle of approximately 90° "... for features of maintaining belt alignment and enhancing frictional contact, in keeping with the instant invention"

The application of the teachings of Conrad, therefore, leads to the second argument, in which appellant states that the claim language is to be reasonably interpreted in view of the specification - meaning, interpretation of the claim language as intended by appellant regardless of the broadness of the claim language.

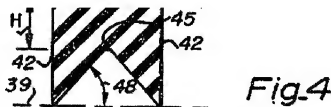
Again, Conrad teaches a belt structure as claimed, excluding the tensile cords as disclosed by Winninger et al, in an environment as claimed - notably, "...having a pulley-engaging surface". Furthermore, that the ribbed profile of Conrad extending along a longitudinal direction of his belt comprises a plurality of ribs further cements the applicability of his teachings, for which the recitation that said profile has "... a rib with an angle of approximately 90°" is met for features and benefits as reviewed above.

Therefore, appellant's third argument that the ribbed profile of Winninger et al as modified by Conrad would result in a rib having a "notch" as defined by appellant is seemingly irrelevant in view of the broadness of the claim language and the structure, operating environment and explicit benefits of the belt of Conrad - the latter overcoming appellant's fourth argument as well.

The modification of Winninger et al, wherein Winninger et al *depict* a rib *having* an angle of approximately 90°, by Conrad teaching a rib *with* an angle of approximately 90° can be reasonably understood as either yielding a belt of Winninger et al with the ribbed profile of Conrad, wherein said profile has a rib with the angle of appellant's interest and therewith the "notch" of Conrad, *which is not precluded by the claim language*, or the ribbed profile of Winninger et al comprises the rib of Winninger et al with an angle as depicted by Winninger et al for features as taught by Conrad, in that a feature of a right-triangle (requiring a 90° angle) can lead to sides opposite a hypotenuse of said triangle as being of identical, *maximum* lengths as shown:



Wherein said sides form an angle of 90° at apex (45) that results from angle (48) of 45° as noted above and derived from Conrad's disclosure (Col. 3, L. 25) as follows:



Thereby, Conrad teaches maximizing pulley-engaging surfaces (lengths of Sides A, B) for cooperative engagement with grooves (28) of a pulley (22), thereby maximizing power transmission and maintaining belt alignment (Col. 3, L. 45 – 55), *which is commensurate with the intent of appellant's invention (Para. 0024 – 0026)*, as afforded by the right-triangular configuration of his "notch".

Again, in lieu of introducing the "notch" of Conrad to the rib of Winninger et al, the modification could comprise constructing the rib angle of Winninger et al as *an* angle of Conrad's rib for the aforementioned benefits as well.

Further to the third argument, appellant has noted the teachings of the "now supplanted" reference of White, Jr. et al, in which White, Jr. et al taught that increasing a rib angle from 40° to 60° - a 50% increase over what was conventional at the time of White, Jr. et al (and as indirectly referenced by Winninger et al) - would lead to "... reducing tension decay while ensuring drive alignment and reduction in noise, (Col. 5,

Art Unit: 3654

Line 64)...” as noted in the office action mailed 19 April 2006 and *commensurate with the intent of appellant's invention as well.*

Appellant subsequently argued at that time that it was a “leap” to increase the angle of White, Jr. et al nearly an additional 50% to further the teachings of White, Jr.

Though the rejection with respect to White, Jr. et al and the rib angle as recited in the independent claims was withdrawn at that time due to a requirement of said “leap”, an additional teaching of White, Jr. et al with respect to subject matter of several depending claims was maintained.

Consequently, appellant's revisiting the teachings of White, Jr. et al with respect to the independent claim(s) is not fully understood; however, the relevancy of White, Jr. et al in establishing motivation within the art for modifying belt structure to derive the benefits commensurate with those of appellant's invention is appreciated.

Finally, with respect to the fourth argument, that the “notch” of Conrad would impermissibly weaken the rib of Winninger et al due to a loss of material and related shear strength is, if even true, immaterial in view of the broadness of the claim language in which a particular device or load criteria associated with a specific operating environment is neither referenced nor positively recited.

(Additionally, appellant's assertion that in Conrad “...sides 42 of rib 40 are parallel and so cannot describe a rib angle”, though superfluous to the rejections above, is not persuasive, in that said rib comprises two parallel sides (42) wherein each side forms an approximate 90° angle with the surface (38) of the his belt (18) as supported by his disclosure (Col. 3, L. 6 – 8)).

Consequently, the teaching of Conrad does not destroy/impair the reference of Winninger et al; rather, teaches a viable alternative for obvious consideration of one having ordinary skill in the art.

Therefore, in response to appellant's argument that the examiner's conclusion of obviousness in combining Winninger et al and Conrad lacks motivation and is based upon improper hindsight reasoning, the motivation(s) to combine is drawn from the

Art Unit: 3654

respective disclosures and thereby takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made.

With respect to the rejection of **all depending claims**, applicant has not refuted the respective teachings of Adifon et al, Suhling, Siefert, White, Jr. et al and Stork, but rather reiterated a lack of *prima facie* case of obviousness of the cited prior art of record with respect to the independent claims.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Stefan Kruer/

Examiner, Art Unit 3654

21 October 2009

/John Q. Nguyen/

Supervisory Patent Examiner, Art Unit 3654

Conferees:

John Q. Nguyen: /JN/

Heather Shackelford /hcs/